

In re Patent Application of:

HILL

Serial No. 10/761,275

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IN THE CLAIMS

1. (original) A doped semiconductor powder comprising nanocrystals of a group IV semiconductor and a rare earth element, the rare earth element being dispersed on the surface of the group IV semiconductor nanocrystals.
2. (original) A doped semiconductor powder according to claim 1, wherein the rare earth element is present in a concentration of from 0.5 to 10 atomic percent.
3. (original) A doped semiconductor powder according to claim 1, wherein the rare earth element is present in a concentration of from 0.5 to 5 atomic percent.
4. (original) A doped semiconductor powder according to claim 1, wherein the rare earth element is present in a concentration of from 0.5 to 2 atomic percent.
5. (original) A doped semiconductor powder according to claim 1, wherein the nanocrystals have an average diameter of from 0.5 to 10 nm.
6. (original) A doped semiconductor powder according to claim 1, wherein the nanocrystals have an average diameter of about 3 nm.
7. (original) A doped semiconductor powder according to claim 1, wherein the group IV semiconductor is selected from Si, Ge, Sn and Pb.
8. (original) A doped semiconductor powder according to claim 1, wherein the rare earth element is selected from cerium,

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praseodymium, neodymium, promethium, gadolinium, erbium, thulium, ytterbium, samarium, dysprosium, terbium, europium, holmium, lutetium, and thorium.

9. (original) A doped semiconductor powder according to claim 1, wherein the rare earth element is selected from erbium, thulium and europium.

10. (original) A group IV semiconductor nanocrystal powder according to claim 1, wherein the rare earth element is in the form of an oxide.

Claims 11 to 31 (Cancelled).

32. (original) A composite material comprising a support matrix and a doped semiconductor powder according to claim 1, the doped semiconductor powder being coated on or embedded in the support matrix.

33. (original) A composite material according to claim 32, wherein the doped semiconductor powder is embedded in the support matrix.

34. (original) A composite material according to claim 32, wherein the support matrix comprises spin-on-glass, a silica sol-gel or a polymer.

35. (original) A composite material according to claim 32, wherein the support matrix is in the form of a layer prepared by spin-coating.

36. (original) A composite material according to claim 32, wherein the support matrix comprises silicon dioxide obtained by annealing a silica sol-gel.

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37. (original) A composite material according to claim 32,  
wherein the support matrix is in the form of a printed  
pattern.